

ANTIBODY TO HEPATITIS A VIRUS IN HEALTHY NIGERIANS

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Two hundred and fifty Nigerians (175 male and 75 female), whose ages ranged from 5 to 70 years, were surveyed for the presence of antibody to hepatitis A virus (anti-HAV). The prevalence was determined to be 82 percent. The rates were highest in blood donors (90 percent) and hospital workers (91.4 percent) and lowest in children under the age of 10 (25 percent). The prevalence rates were not related to socioeconomic groups, previous exposure, jaundice, or sex. The study confirms that HAV infection is endemic in Nigeria and that most infections are subclinical and occur early in life. Acute hepatitis in a Nigerian adult may therefore not be due to HAV.

The development of laboratory assays for the detection of antibody to hepatitis A virus (anti-HAV)^{1,2} has made it possible to evaluate the occurrence and distribution of hepatitis A virus (HAV) infections in various populations of the world.³⁻⁷ It is evident from all these reports that prevalence rates vary from one population to another, that socioeconomic and environmental conditions may influence the prevalences, and that the age related patterns may be unusual in some countries.^{5,7}

The prevalence rate of anti-HAV in Nigerians is reported in this communication. Factors that may influence these rates were examined.

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MATERIALS AND METHODS

The anti-HAV survey was carried out among 250 healthy Nigerians (175 males and 75 females) whose ages ranged from five to 70 years (Table 1). Of these, 100 men were volunteer blood donors and 35 (20 men and 15 women) were hospital workers. The remaining subjects were school children, students, housewives, artisans, farmers, and business executives.

In order to determine the possible influence of socioeconomic factors on prevalence rates of anti-HAV, the adult group (20 years of age) were classified into three socioeconomic classes based on educational achievement and earning power using the Nigerian civil service salary scales (level 0-17). "Low class" consists of those with little or no education and who were on salary scale levels 0 to 4; "middle class," those with secondary education on levels 5 to 10, and "upper class," graduates or professionals at earning levels above 10.

Detailed clinical and epidemiological history was obtained to include previous jaundice, contact with jaundiced patients, blood transfusions, and previous infections. Clinical hepatobiliary diseases were excluded by careful physical examinations and estimation of the aminotransferases (SGOT, SGPT) and serum bilirubin using standard methods.

Antibody to hepatitis A virus was detected by radioimmunoassay (RIA)² using the HAVAB™ kit.*

*Abbott Laboratories, North Chicago, Illinois

TABLE 1. SEX-AGE DISTRIBUTION OF NIGERIANS TESTED FOR ANTIBODY TO HEPATITIS A VIRUS

| | Men | Women | Total |
|-------------|-----|-------|-------|
| Age (years) | | | |
| 0-9 | 14 | 6 | 20 |
| 10-19 | 15 | 5 | 20 |
| 20-29 | 70 | 30 | 100 |
| 30-39 | 24 | 16 | 40 |
| 40-49 | 20 | 10 | 30 |
| 50+ | 32 | 8 | 40 |
| Total | 175 | 75 | 250 |

TABLE 2. ANTIBODY TO HEPATITIS A VIRUS IN HEALTHY NIGERIANS

| | Number Tested | Number Positive | Percent Positive |
|-------------|---------------|-----------------|------------------|
| Age (years) | | | |
| 0-9 | 20 | 5 | 25.0 |
| 10-19 | 20 | 12 | 60.0 |
| 20-29 | 100 | 85 | 85.0 |
| 30-39 | 40 | 38 | 95.0 |
| 40-49 | 30 | 28 | 93.3 |
| 50+ | 40 | 37 | 92.5 |
| Total | 250 | 205 | 82.0 |

TABLE 3. ANTI-HAV AND SOCIOECONOMIC STRATIFICATION

| | Number Tested | Number Positive | Percent Positive |
|--------|---------------|-----------------|------------------|
| Class | | | |
| Low | 93 | 84 | 90.3 |
| Middle | 77 | 69 | 89.6 |
| Upper | 40 | 35 | 87.5 |
| Total | 210 | 188 | 89.5 |

ABO blood groups were determined by standard technique.⁸

RESULTS

Of the 250 sera tested, 205 (82 percent) were positive for anti-HAV. The relationship between the prevalence rates and age is summarized in

Table 2. The prevalence rose with age, reaching a peak in the fourth decade.

There was no significant difference in anti-HAV prevalence between men and women. Of the 175 men, 82.9 percent were positive while 80 percent of the 75 women were positive ($P>0.05$).

Socioeconomic status did not influence the prevalence of anti-HAV as shown in Table 3. Al-

TABLE 4. PREVALENCE OF ANTI-HAV IN VARIOUS SAMPLE GROUPS

| | Number Tested | Number Positive | Percent Positive |
|------------------------|----------------------|------------------------|-------------------------|
| Voluntary blood donors | 100 | 90 | 90.0 |
| Hospital workers | 35 | 32 | 91.4 |
| Nonhospital workers | 70 | 62 | 88.6 |
| Medical students | 20 | 15 | 75.0 |
| Schoolchildren | 25 | 7 | 28.0 |

TABLE 5. PREVALENCE OF ANTI-HAV AND EXPOSURE HISTORY

| History | Number of Patients | Number Positive | Percent Positive |
|--------------------------------|---------------------------|------------------------|-------------------------|
| Previous contact with jaundice | 29 | 26 | 86.2 |
| Previous jaundice | 10 | 8 | 80.0 |
| Previous blood transfusion | 5 | 4 | 80.0 |
| Injections/scarifications | 45 | 38 | 84.4 |
| Total | 89 | 75 | 85.4 |

though the highest prevalence rates were observed in hospital workers and blood donors, the prevalence rates were not significantly different in the nonhospital adult workers (Table 4). The lowest rates were observed in school children and students most of whom were below 25 years of age; there was no relationship between ABO blood groups and the detection of anti-HAV.

Prevalence rates in those with positive exposure history were not significantly different than in those without (Table 5). Those with a history of contact with jaundice patients were mainly hospital workers.

DISCUSSION

As reported from other parts of the world,⁵ hepatitis A virus (HAV) infections are widespread in Nigeria. Contrary to the belief that this form of hepatitis occurs predominantly in epidemics, the findings in this study suggest that in Nigerians subclinical infections are constant after 20 years of age.

The prevalence rates of 82 percent of anti-HAV in this series is comparable with the rates determined for Belgium (81 percent) and Senegal (76 percent) but considerably higher than those determined for the United States (44 percent) and Switzerland (28.7 percent).⁵ These variations no doubt reflect on the socioeconomic status and environmental conditions of the populations studied.

The age related increase in anti-HAV rates in the present study is similar to the observation in Spain⁹ and fails to confirm the unusual pattern in Senegal, another West African country where the curve starts to decline after 18 years, reaching a lowest level beyond the age of 50 years.⁵ The disparity in the findings in the latter study and the present one cannot easily be explained. It is, however, pertinent to note that the Senegalese sample was drawn from hospitalized patients, whereas in the present series and those from other countries,^{3,5,6} subjects were randomly selected. Second, testing for anti-HAV in the Senegalese group was done by immune adherence hemagglutination (IAHA), which is less sensitive than RIA.

Within the group studied, it is interesting that

socioeconomic stratification does not seem to influence the prevalence of anti-HAV in Nigerians. This is not surprising for the following reasons. First, as indicated by the findings in the present study, HAV infection appears to be an infection of childhood, and most of the subjects classified as belonging to higher socioeconomic groups had spent their childhoods in environments similar to those who remained in the lower class. Second, a common source of water and food supply is shared by all socioeconomic groups in most developing countries such as Nigeria. Third, members of the upper class employ members of the low class as cooks and stewards, a situation encouraging easy transmission between all classes.

It is confirmed in this study that anti-HAV has no relationship with sex, blood groups, and history of exposure to or previous jaundice. Anti-HAV has been shown to confer almost total immunity against HAV infection.⁴ This would imply that most cases of acute hepatitis in Nigerian adults are not due to HAV and may therefore be due to non-A, non-B hepatitis agent or agents.

Literature Cited

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CONTINUING MEDICAL EDUCATION MEETINGS

The dates and locations of the remaining 1982 Continuing Medical Education Meetings of the NMA's regions and constituent societies are as follows:

| Date | Society | Location | City/State |
|------------|---|------------------------------|------------------------|
| May 26-28 | Volunteer State Medical Association | Meharry Medical College | Nashville, Tenn |
| June 9-11 | Georgia State Medical Association | Hyatt Regency Palmetto Dunes | Hilton Head Island, SC |
| June 9-12 | Louisiana State Medical Association | Biloxi Hilton | Biloxi, Miss |
| June 16-19 | Arkansas Medical, Dental and Pharmaceutical Association | Ramada Inn | West Memphis, Ark |
| June 16-19 | Old Dominion Medical Society | — | Williamsburg, Va |
| June 17-20 | Missouri Pan Medical Association | Tan-Tar-A Resorts | Osage Beach, Mo |
| June 18-20 | Old North State Medical Association | Hyatt Hotel | Winston-Salem, NC |
| June 20-23 | Florida State Medical Association | Marriott Hotel | Ft. Lauderdale, Fla |
| June 24-27 | Region VI | Sahara Hotel | Las Vegas, Nev |
| June 24-27 | Golden State Medical Association | Sahara Hotel | Las Vegas, Nev |